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中国淫羊藿属(小檗科)二新种

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Two new species of *Epimedium* (Berberidaceae) from China

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Abstract　Two new species of the genus *Epimedium* (Berberidaceae) from China, *E. pseudowushanense* B. L. Guo and *E. qingchengshanense* G. Y. Zhong & B. L. Guo, are described and illustrated. *Epimedium pseudowushanense*, distributed from southeast of Guizhou to north of Guangxi, has been previously misidentified as *E. wushanense* T. S. Ying because of the similarity in their leaflet shape, but they are two distinct species because of the obvious difference in their flower structure. *Epimedium pseudowushanense* is possibly similar to *E. mikinorii* Stearn, a species from Enshi, Hubei, in having petals with a very slender spur and a wrinkled lamina, but differs in the spur shorter, only 10–15 mm long, the lamina smaller, the leaflets narrowly ovate to lanceolate, sparsely white villose and glaucous on abaxial side, the petals purplish or purple with yellow lamina, and the inner sepals broadly ovate or ovate, 8–13 mm long. *Epimedium qingchengshanense* G. Y. Zhong & B. L. Guo, known only from Dujiangyan, Sichuan, is one of the *Epimedium* species with long filaments and most similar to *E. fargesii* Franch., but differs by having smaller flowers, bigger, rounded petal lamina without lobes, and purple filaments.

Key words　*Epimedium*, *Epimedium pseudowushanense* B. L. Guo, *Epimedium qingchengshanense* G. Y. Zhong & B. L. Guo, Berberidaceae, new species, China.

摘要　报道了中国小檗科Berberidaceae淫羊藿属*Epimedium*两个新种，拟巫山淫羊藿*Epimedium pseudowushanense* B. L. Guo和青城山淫羊藿*E. qingchengshanense* G. Y. Zhong & B. L. Guo。拟巫山淫羊藿产于贵州黔东南州和广西北部，一直因小叶片相似被误定为巫山淫羊藿*Epimedium wushanense* T. S. Ying，但二者花的结构极其不同。拟巫山淫羊藿以花瓣距细和瓣片有皱褶而与产于湖北的直距淫羊藿*E. mikinorii* Stearn相类似，但距较短，长仅10–15 mm，瓣片小，小叶片狭卵形至披针形，叶背面被稀疏的白色长毛，具白粉，花瓣紫红色或紫色，内轮萼片宽卵形或卵形，可以区别。青城山淫羊藿局限分布于四川都江堰市青城山后山，该种为淫羊藿属雄蕊显著伸长的种类，与川鄂淫羊藿*E. fargesii* Franch.相似，但花各部较川鄂淫羊藿为小，花瓣瓣片大而圆，不裂，花丝紫色可以区别。

关键词　淫羊藿属；拟巫山淫羊藿；青城山淫羊藿；小檗科；新种；中国

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主产于贵州省黔东南州(尤其集中分布于雷山县)的一种淫羊藿属*Epimedium* L.植物，以小叶片为披针形或狭披针形，叶背面无毛或被少量白色长毛等特征一直被误定为巫山淫羊藿*Epimedium wushanense* T. S. Ying，当药典规定种使用。叶形的相似是导致误用的主要原因，因为淫羊藿属中，已经发表的小叶片为披针形至狭披针形的种类仅有巫山淫羊藿、黔北淫羊藿*E. borealiguizhouense* S. Z. He & Y. K. Yang和镇坪淫羊藿*E. ilicifolium* Stearn三个种(镇坪淫羊藿在命名之前也用作巫山淫羊藿)，但经作者采集观察，二者花的形态显著不同，颜色也不相同。该植物与分布于湖北恩施的直距淫羊藿*E. mikinorii* Stearn的花形态较相似，但花瓣的距较短，瓣片也较小，应是一个尚未描述的种。

作者在重庆中药研究院查阅标本时，看到一份采于四川都江堰的标本(钟国跃1988-35, SM)，钟国跃在标本上注明疑为新物种，后在青城后山又采到标本，拍到了原植物照片。该植物与川鄂淫羊藿*E. fargesii* Franch.、长蕊淫羊藿*E. dolichostemon* Stearn和德务淫羊藿*E. dewuense* S. Z. He, Probst & W. F. Xu均属于淫羊藿属中雄蕊花丝伸长的种类，但其花各部均较小，雄蕊花丝为紫色，花瓣的瓣片圆而伸展，不分裂，因此也应是一个尚未描述的种。

1. 拟巫山淫羊藿 新种 图1, 3; 图2: A, B

Epimedium pseudowushanense B. L. Guo, sp nov. Figs. 1, 3; Fig. 2: A, B

Simile primo adspectu *E. wushanensi* T. S. Ying, quod petalis multo longioribus quam sepalis interioribus, laminis orbicularibus, haud corrugatis, circ. 7 mm longis, vel deficientibus, floribus pallide flavis. Proximum *E. mikinorii* Stearn., quod petalis multo longioribus quam sepalis interioribus, laminis circ. 3.5 mm longis, foliolis ovatis vel anguste ovatis, subtus glabris differt.

Herba perennis, 30–50 cm alta. Rhizoma compactum, multinodum. Folia basalia et caulina 3-foliolata, subtus glauca, sparse villosa, coriacea; foliola anguste ovata, lanceolata vel anguste lanceolata, 6–13 cm longa, 2–4.5 cm lata, apice longe acuminata, margine profuse spinosa, basi profunde cordata, lateralia asymmetrica, lobis rotundatis, acutis vel acuminatis. Folia caulina 2, opposita. Inflorenscentia composita, multiflora (floribus 15–25), 12–17 cm longa; pedicelli glabri, 2.5–4 cm longi; sepala externa mox caduca, obovata, 3–4.5 mm longa, 2–3 mm lata, interna ovata vel late ovata, aliquando anguste ovata, alba, rosea vel aliquando pallide flava, 8–13 mm longa, 4–8 mm lata; petala sepalis interiora subaequantia vel longiora et angustiora, laminis corrugatis, 2–3 mm longis, flavo-marginata, calcari gracili, elongato, subulato, recto vel paullo incurvato, 10–15 mm longa, aliquando 20 mm, roseo, purpureo vel aliquando pallide flavo; stamina flava, circ. 4 mm longa, antheris circ. 2.5 mm longis. Capsula circ. 1.5 cm longa, stigmate persistenti rostriformi, 4–5 mm longo. Fl. Mar.–Apr. Fr. Mai.

多年生草本，高30–50 cm。根状茎粗短，结节状。叶基生和茎生，小叶3枚，叶背面具白粉，被稀疏的柔毛，革质；小叶片狭卵形、披针形或狭披针形，长6–13 cm，宽2–4.5 cm，先端长渐尖，叶缘密生刺状锯齿，叶基深心形，侧生小叶基部不对称，裂片圆、钝尖至渐尖。花茎具两枚对生叶。圆锥状花序，具花15–25朵，长12–17 cm；花梗无毛，长2.5–4 cm；外轮萼片早落，倒卵形，长3–4.5 mm，宽2–3 mm，内轮萼片卵形、宽卵形，偶狭卵形，白色、浅紫红色或偶浅黄色，长8–13 mm，宽4–8 mm；花瓣与内轮萼片近等长或略长，瓣片有皱褶，长2–3 mm，边缘黄色，距细而伸直或略内弯，距长10–15 mm，偶达20 mm，浅紫红色或紫色，偶浅黄色；雄蕊黄色，长约4 mm，花药长约2.5 mm。蒴果长约1.5 cm，宿存

花柱长4–5 mm。花期3–4月，果期5月。

China. Guizhou (贵州): Leishan (雷山), Xijiang (西江), alt. 1200 m, 2003-03-28, *B. L. Guo* (郭宝林) *A97* (holotype, IMD).

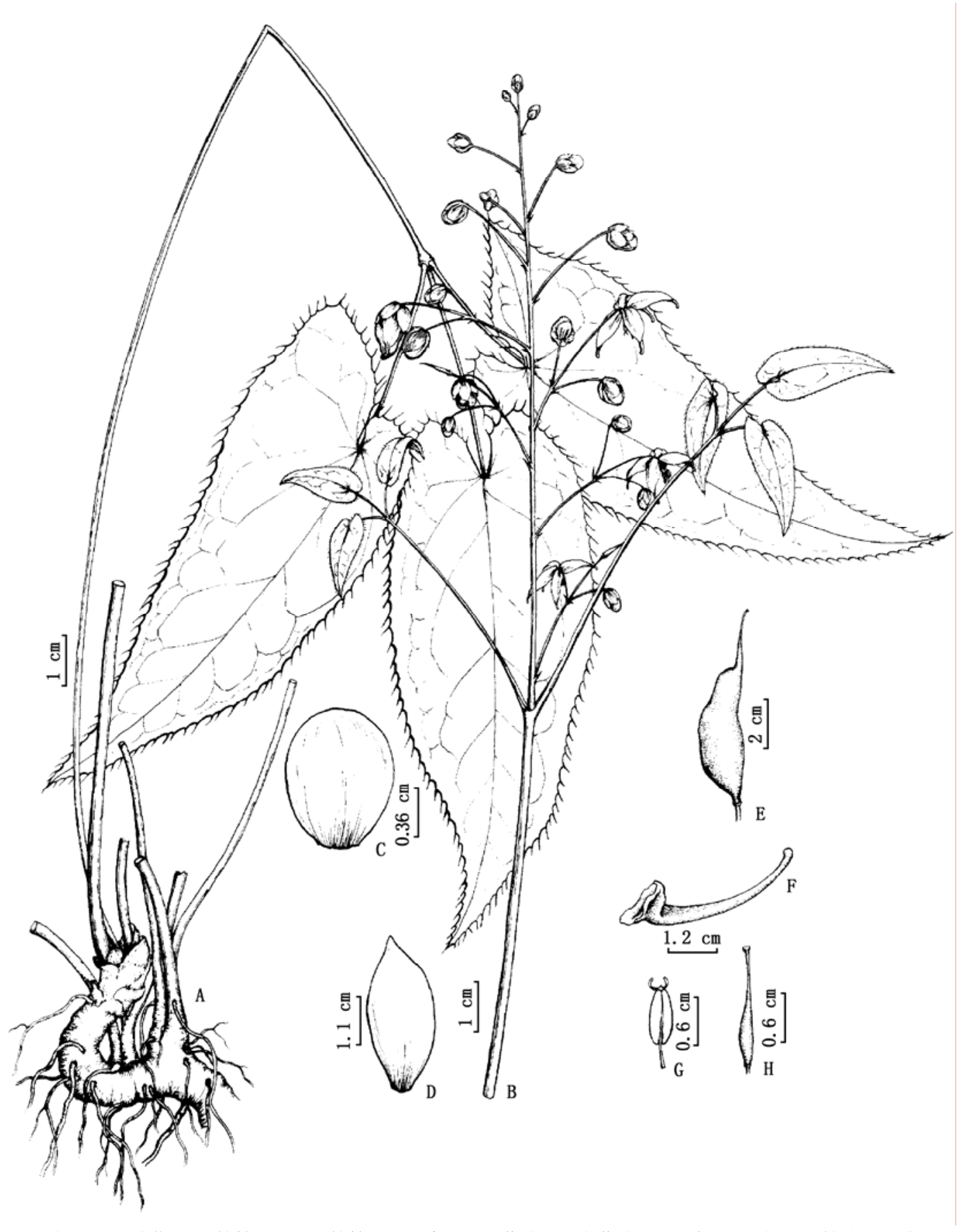


图1　拟巫山淫羊藿　A, 植株基部; B, 植株上部花序; C, 外萼片; D, 内萼片; E, 果实; F, 花瓣; G, 雄蕊; H, 雌蕊。

Fig. 1.　*Epimedium pseudowushanense* B. L. Guo.　A, inferior part of plant; B, inflorescence in superior part; C, sepal outside; D, sepal inside; E, fruit; F, petal; G, stamen; H, pistil.



图2 新种拟巫山淫羊藿和青城山淫羊藿及其相关种的花 **A, B.** 拟巫山淫羊藿。**C.** 直距淫羊藿。**D.** 巫山淫羊藿类型I。**E.** 巫山淫羊藿类型II。**F.** 镇坪淫羊藿。**G.** 青城山淫羊藿。**H.** 川鄂淫羊藿。

Fig. 2. The flowers of the two new species *Epimedium pseudowushanense*, *Epimedium qingchengshanense* and their related species. **A, B,** *E. pseudowushanense*. **C,** *E. mikinorii*. **D,** *E. wushanense* type I. **E,** *E. wushanense* type II. **F,** *E. ilicifolium*. **G,** *E. qingchengshanense*. **H,** *E. fargesii*.

其他检查过的标本:

China. Guangxi (广西): Rongshui (融水), alt. 960m, 1978-05-04, Z. C. Zhen & S. M. Jia (曾志成, 贾世明) 53-104 (GXMI), alt. 930 m, 2005-05-02, L. K. Pei et al. (裴利宽等) 0518 (IMD). **Guizhou (**贵州): Leishan (雷山), alt. 954 m, 2003-03-29, B. L. Guo (郭宝林) A68 (IMD), alt. 950 m, 1986-09-17, X. B. Yang (杨星炳) 9 (HGCM), 1998-04-10, S. Z. He (何顺志) 98025 (HGCM); Dushan (独山), 1990-04-21, G. Z. Fan (范龚筑) 4-4, 4-9 (HGCM); Sandu (三都), alt. 1000 m, 1983-04-13, Q. L. Lin et al. (林启良等) 5 (HGCM); Rongjiang (榕江), 1986-09-01, H. A. Deng (邓华安) 45 (HGCM); Congjiang (从江), alt. 900 m, 1986-10-09, F. Q. Hu (胡发黔) s.n. (HGCM); Taijiang (台江), 1986-06-18, Z. B. Xu (徐志斌) 102 (HGCM); Libo (荔波), 1990-04-21, G. Z. Fan (范龚筑) 5-13 (HGCM); Longli (龙里), alt. 1407 m, 2004-04-01, B. L.Guo (郭宝林) A39 (IMD).

本种在花的形态上与直距淫羊藿*E. mikinorii*相似(图2: C)(应俊生, 2001): 距狭直, 瓣片有皱褶, 黄色, 但后者距长1.7–2 cm, 远长于内轮萼片, 基部瓣片较高。二者叶形和叶背特征也不同, 后者叶为卵形或狭卵形, 一般无毛, 无白粉, 偶具少量细伏毛(郭宝林A48, 2004-04-07, alt. 829 m, 湖北恩施; 郭宝林A50, 2004-04-08, alt. 533 m, 湖北恩施, IMD)。

巫山淫羊藿*E. wushanense* T. S. Ying (应俊生, 1975, 2001)实际上是叶形态比较一致, 而花形态多样的一个物种, 主要可以分为两种类型。类型I: 分布于模式产地重庆巫山以及巫溪和邻近的湖北巴东, 其花瓣具有显著高出的瓣片, 高约7 mm (应俊生1975 没有记述瓣片形态, 应俊生2001仅记述为基部浅杯状), 距由比较粗的基部逐渐变狭, 距长2 cm, 内轮萼片宽卵形, 12–15×7–8 mm (图2: D) (郭宝林89001, 1989-04-02, alt. 1500 m, 重庆巫山; 郭宝林0434, 2004-04-09, alt. 812 m, 湖北巴东, IMD); 类型II: 分布于四川北部的巴中、万源、达县、苍溪等地, 花瓣无瓣片, 距细长, 长2.2 cm, 距的口部有时具一圈棕色环, 内轮萼片披针形或卵形, 6×2.5–4 mm (图2: E)(郭宝林0524, 2005-05-03, alt. 336m, 四川巴中, IMD), Stearn的形态描述来自于四川万源的标本, 属于此类型(Stearn, 2002)。另外巫山淫羊藿原始记录(应俊生, 1975)中花大小的下限值内轮萼片小至长4 mm, 花瓣短至0.6 cm, 作者对引证标本进行了观察, 其实来自于未成熟的花。分布于陕西安康地区的镇坪淫羊藿*E. ilicifolium* Stearn药用也一直被用作巫山淫羊藿, 它的花也是浅黄色, 形态从镇坪向北到平利呈现过渡变化, 靠近镇坪的类型, 花瓣有瓣片, 距基部粗, 距长约3 cm, 内轮萼片较大, 11–12×5–7 mm (郭宝林0451, 2004-04-15, alt. 1517 m, 陕西镇坪); 靠近平利的类型, 花瓣无瓣片, 距基部细, 距长2.7–3 cm, 内轮萼片较小, 8×5 mm (图2: F) (郭宝林0455, 2004-04-16, alt. 464 m, 陕西平利)。

巫山淫羊藿的花瓣均明显长于内轮萼片, 花瓣无瓣片或有瓣片但伸展而不皱褶, 花为浅黄色。

拟巫山淫羊藿黄酮类化合物HPLC指纹图谱见图3, 来自于与模式标本编号(郭宝林A97)相同采集地点的叶片样品。直距淫羊藿(郭宝林A48)的HPLC指纹图谱见图4, 巫山淫羊藿不同样品的HPLC指纹图谱呈现多样化, 见图5 (HPLC指纹图谱建立方法参见另文, 裴利宽等, 中国中药杂志, 待发表)。

2. 青城山淫羊藿 新种 图2: G; 图6, 7

Epimedium qingchengshanense G. Y. Zhong & B. L. Guo, sp. nov. Fig. 2: G; Figs. 6, 7

Proximum *E. fargesii* Franch., quod floribus majoribus, petalorum laminis minoribus, 2-lobatis, filamentis albis, inflorescentiis minoribus, glanduloso-pilosis differt.

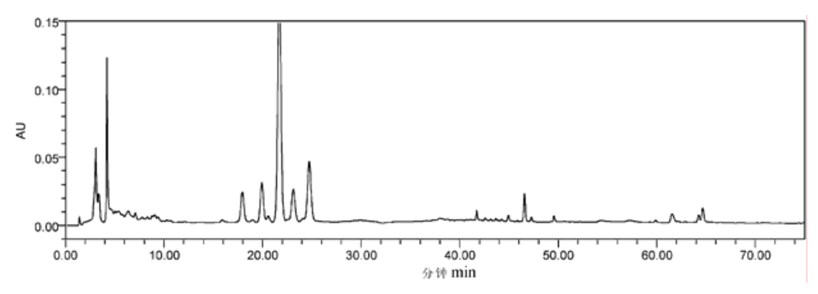


图3 拟巫山淫羊藿叶片中黄酮类化合物HPLC指纹图谱

Fig. 3. HPLC fingerprinting chromogram of flavonoids in the leaves of *Epimedium pseudowushanense*.

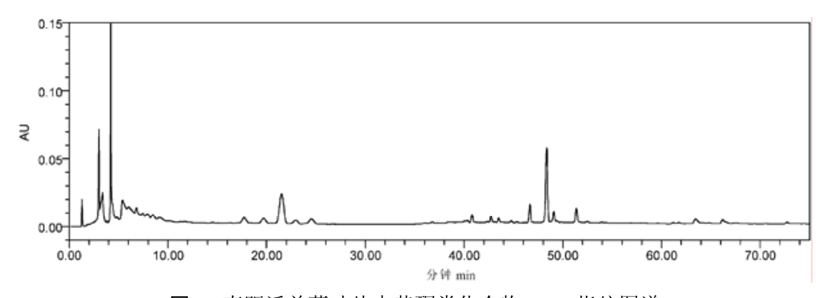


图4 直距淫羊藿叶片中黄酮类化合物HPLC指纹图谱

Fig. 4. HPLC fingerprinting chromogram of flavonoids in the leaves of *Epimedium mikinorii*.

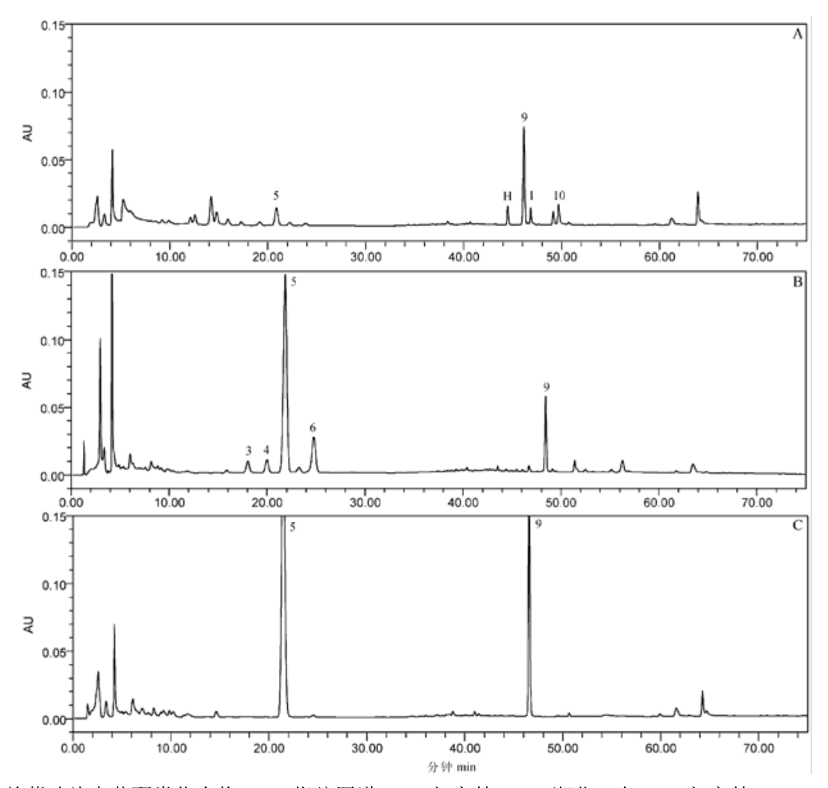


图5 巫山淫羊藿叶片中黄酮类化合物HPLC指纹图谱 A, 郭宝林0434 (湖北巴东); B, 郭宝林89001 (重庆巫山); C, 郭宝林0526 (四川巴中)。

Fig. 5. HPLC fingerprinting chromogram of flavonoids in the leaves of *Epimedium wushanense*. A, *B. L. Guo 0434* (Badong, Hubei); B, *B. L. Guo 89001* (Wushan, Chongqing); C, *B. L. Guo 0526* (Bazhong, Sichuan).

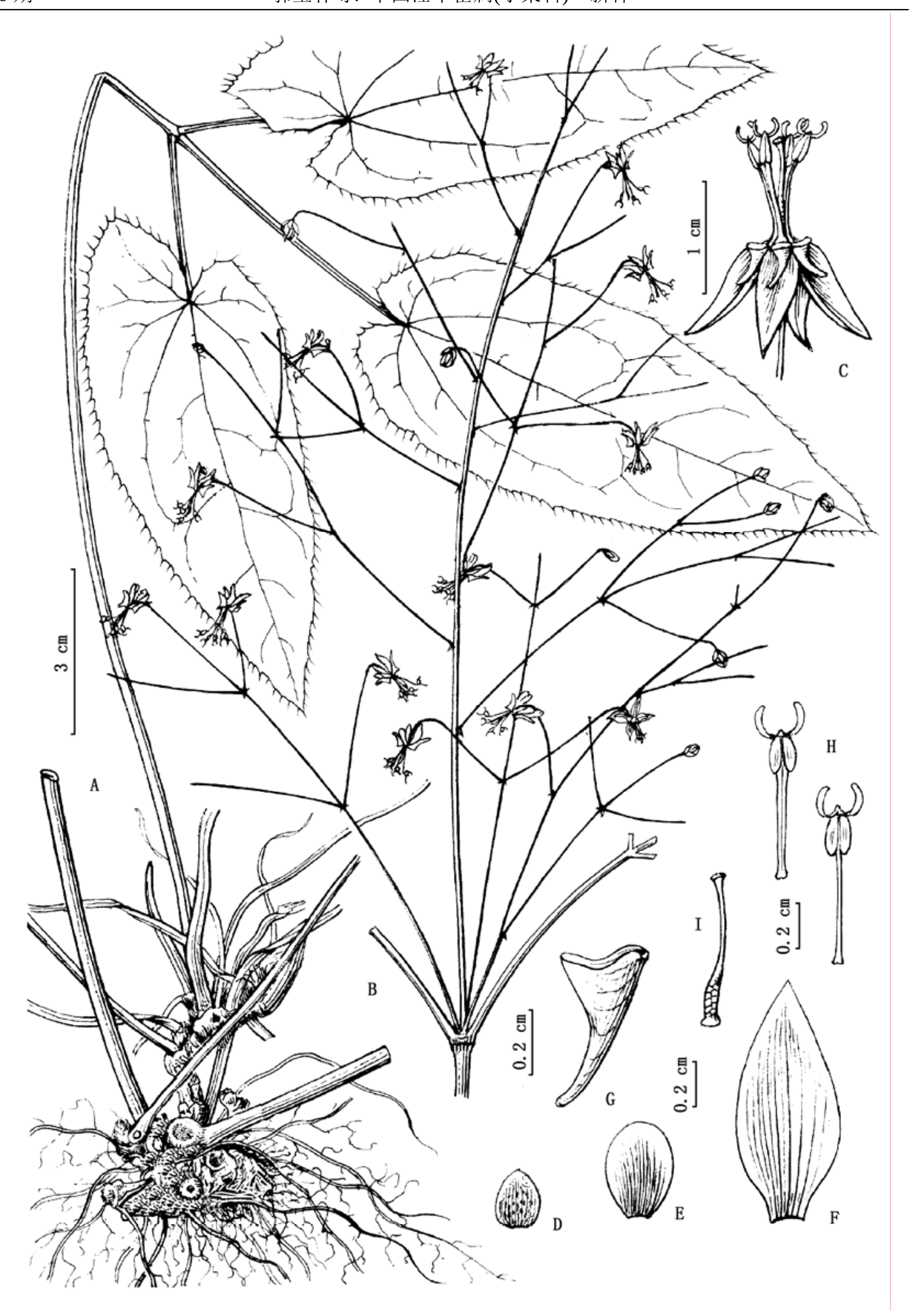


图6　青城山淫羊藿　A, 植株基部; B, 植株上部花序; C, 花放大; D, E, 外萼片; F, 内萼片; G, 花瓣; H, 雄蕊; I, 雌蕊。
Fig. 6.　*Epimedium qingchengshanense* G. Y. Zhong & B. L. Guo.　A, inferior part of plant; B, inflorescence in superior part; C, flower amplified; D, E, sepal outside; F, sepal inside; G, petal; H, stamen; I, pistil.

Herba perennis, omnino glabra, 40–70 cm alta. Rhizoma compactum, multinodum. Folia basalia et caulina 3-foliolata, subtus glabra, tenuiter coriacea; foliola anguste ovata, 8–12 cm longa, 3.5–5.5 cm lata, apice acuta, margine sparsim spinosa, basi cordata, lateralia asymmetrica, lobis rotundatis vel acutis. Folia caulina 2 opposita. Inflorescentia composita, pedicellis inferioribus 3-floris, laxa, multiflora (floribus 20–35), 15–25 cm longa; inflorescentiae axillares simplices, 3–10 florae; pedicelli 2.5–4 cm longi. Sepala externa mox caduca, obovata, 3–4.5 mm longa, 2–3 mm lata, interna reflexa vel paullo reflexa, ovata, alba, circ. 1.1 cm longa, circ. 0.5 cm lata; petala sepalis interioribus multo breviora, reflexa vel paullo reflexa, purpurea, laminis orbicularibus, circ. 2 mm longis, calcari recto, 4 mm longo, basi abrupte gracili. Stamina erecta, conspicue exserta, filamentis purpureis 4–5 mm longis, antheris circ. 2.5 mm longis, viridibus. Fl. May–Jun. Fr. ignoti.

多年生草本，全株无毛，高40–70 cm。根状茎粗短，结节状。叶基生和茎生，小叶3枚，叶背光滑无毛，薄革质；小叶片狭卵形，长8–12 cm，宽3.5–5.5 cm，先端急尖，叶缘疏生刺状短锯齿，叶基心形，侧生小叶基部不对称，裂片圆或钝尖。花茎具两枚对生叶。圆锥状聚伞花序，下部花梗具花3朵，宽散，具花20–35朵，花序长15–25 cm，具腋生花序，具花3–10朵；花梗长2.5–4 cm；外轮萼片早落，倒卵形，长3–4.5 mm，宽2–3 mm，内轮萼片反折或略反折，卵形，白色，长约1.1 cm，宽约0.5 cm；花瓣明显短于内轮萼片，反折或略反折，紫色，具圆瓣片，高约2 mm，距伸直，由基部迅速变细，长4 mm；雄蕊显著伸出，花丝紫色，长4–5 mm，花药绿色，长约2 mm。花期5–6月。果未见。

China. Sichuan (四川): Dujiangyan (都江堰), Tai’an (泰安), Qingcheng Shan (青城山), alt. 980–1500 m, 2005-05-09, *X. B. Yang* (杨相波) *0534* (holotype, IMD), *G. Y. Zhong* (钟国跃) *1988-35* (SM)。

本种类似川鄂淫羊藿*E. fargesii* Franch. (图2: H) (郭宝林0448, 2004-04-14, alt. 818 m, 重庆巫溪，IMD)，雄蕊均显著伸长，花瓣短于内轮萼片，距伸直且较淫羊藿属其他小花种类为长，但后者花各部均较大，花瓣瓣片小而呈两裂片，花丝白色；植株较小，高20–50 cm，叶小而呈狭卵形，花序小，有腺毛，很容易区别。

青城山淫羊藿黄酮类化合物的HPLC指纹图谱(图7)来自于与标本编号(杨相波0534)同一地点的叶片样品。图8为川鄂淫羊藿(郭宝林0448)的HPLC指纹图谱。

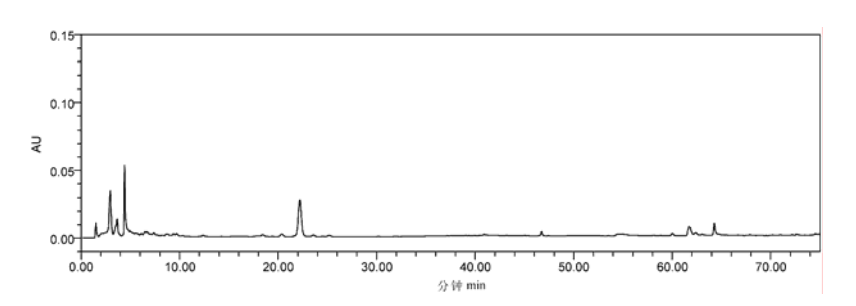


图7　青城山淫羊藿叶片中黄酮类化合物HPLC指纹图谱

Fig. 7.　HPLC fingerprinting chromogram of flavonoids in the leaves of *Epimedium qingchengshanense*.

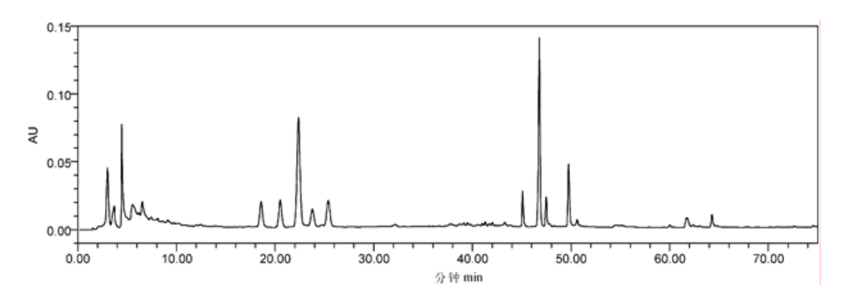


图8 川鄂淫羊藿叶片中黄酮类化合物HPLC指纹图谱

Fig. 8. HPLC fingerprinting chromogram of flavonoids in the leaves of *Epimedium fargesii*.

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